



REVIEW OF BASIC RAPID TRANSIT ISSUES
DISCUSSED BY THE
TRANSPORTATION TECHNICAL COMMITTEE,
1959 – 1961

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City Planning Commission

James H. McCarthy, Director of Planning

REPORT OF BASIC RAPID TRANSIT ISSUES DISCUSSED BY THE
TRANSPORTATION TECHNICAL COMMITTEE -- 1959 - 1961

In view of the current interest on the part of some members of the Board of Supervisors in the "Minority Report" of the Transportation Technical Committee, there is submitted herewith a review of some of the basic points of discussion that took place in the course of the Transportation Technical Committee's studies and surveys during 1959 and 1960.

These main basic issues in some cases represented differences between the Transportation Technical Committee and their consultants with the Bay Area Rapid Transit District engineering staff and their consultants. In other cases, some members of the T.T.C. tended to agree with the BARTD staff and consultants, others agreeing with the San Francisco consultants, and in a few cases three points of view could be found: (1) S. F. Consultants and some committee members, (2) other committee members, and (3) the BARTD staff and consultants.

The various major issues under consideration were as follows:

1. "Separate Interurban Rapid Transit System and Separate San Francisco Local Rapid Transit System Versus a Single System Serving Both Needs."

In 1956 the report, "Regional Rapid Transit," published by the Bay Area Rapid Transit Commission, (predecessor to the present Bay Area Rapid Transit District), assumed that the regional system would serve only inter-city traffic in San Francisco and that a separate local rapid transit system would be built by the City and County to serve its own needs. This same assumption had been made also by the Mayor's Transportation Committee, predecessor to the City's Transportation Technical Committee, which in 1956 recommended a network of proposed city-financed rapid transit lines to supplement the proposed regional network.

Shortly after the Transportation Technical Committee was formed in 1959, and was instructed by the Board of Supervisors to study ways in which local and regional rapid transit plans could be integrated, the committee determined that it would be economically and politically infeasible to finance two separate rapid transit systems in San Francisco, one inter-urban and one local. This was made known by the Committee to the Rapid Transit District staff and consultants, and policy resolutions supporting the "one system concept" were adopted by the Mayor's Transportation Council and by the Board of Supervisors at the suggestion of the Committee in September of 1959.

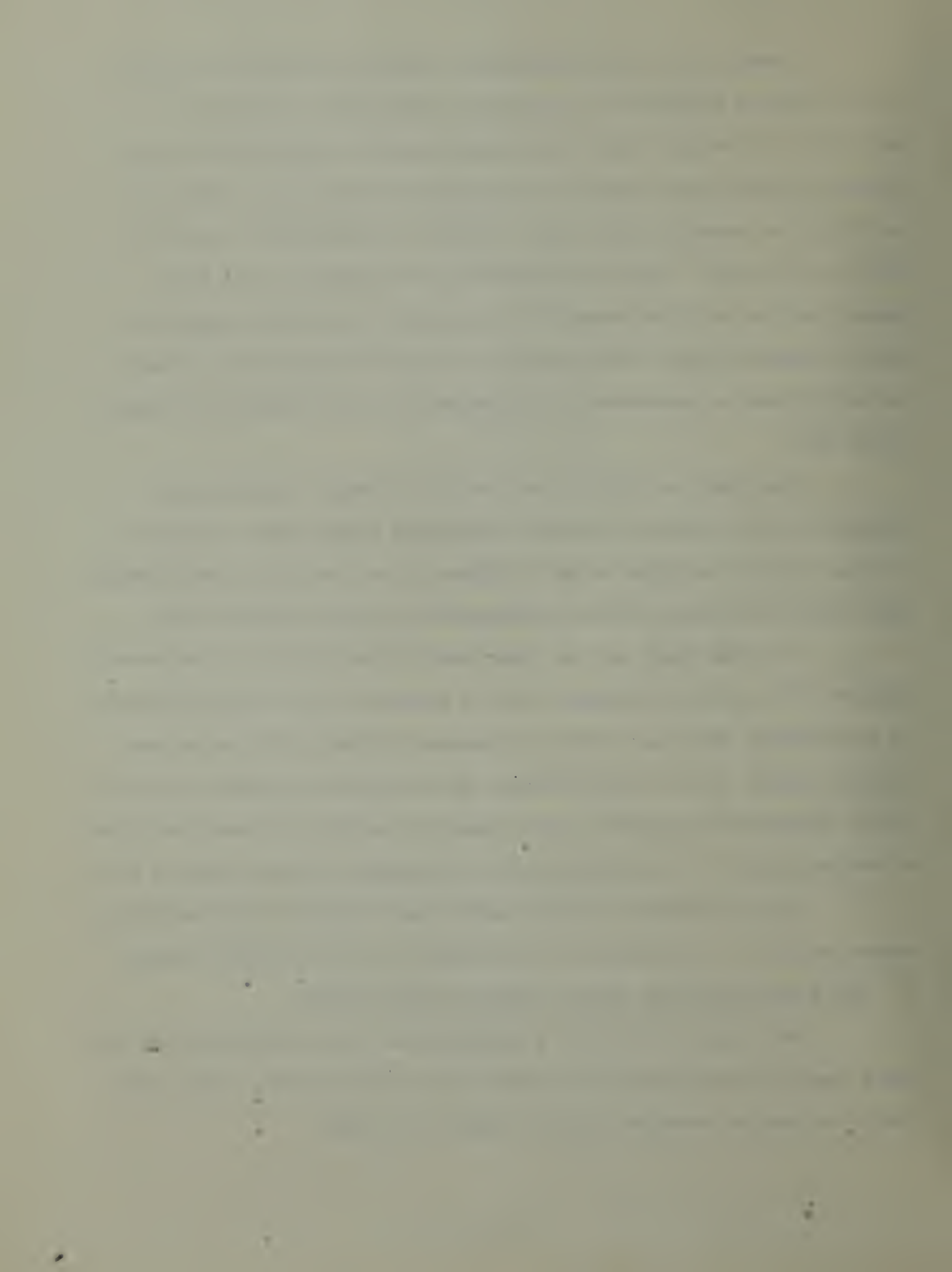
The result of this was that the Rapid Transit District staff revised their "exclusively intercity" concept and explored ways and means of revising concepts contained in the 1956 plans so that more local San Francisco rapid transit patronage could be accommodated on proposed District lines.

A second result was the undertaking by the District, in co-operation with the T.T.C., of an "up-dating" study of passenger origins and destination in San Francisco which was utilized in passenger estimates for the proposed District transit lines in San Francisco, and for intra-city travel as well as for the Trafficways Reappraisal survey report of the City and County published by the Department of City Planning and the Department of Public Works in 1961.

In this discussion of "two rapid transit systems versus one unified system" the T.T.C. was unanimous in its support of the "one-system" concept.

2. "The Four-Fingers-Plan for San Francisco Rapid Transit"

Very early in the T.T.C.'s deliberations it was agreed that four basic rapid transit corridors would be needed to serve San Francisco's local needs (which, on the map resembled the four fingers of a hand):



(1) The Bayshore Corridor: A line generally parallel to the Southern Pacific's Bayshore Line to serve primarily as a peninsula express line, but giving some local service;

(2) The Mission Corridor: A subway from Market Street, under Mission Street, under Bernal Heights and on the surface along the Southern Freeway right-of-way to Daly City (possibly continuing southward to San Bruno as an alternate Peninsula line emphasizing local service to the Mission District and the northwestern San Mateo County);

(3) The Twin Peaks Corridor: A subway under Market Street (with junctions with the Bayshore Line and the Mission Line) involving the use of the existing Twin Peaks street-car tunnel to a terminal either at St Francis Circle or at Daly City, providing a connection with the Mission Line;

(4) The Geary Corridor: A subway under Geary or Post Street and under Geary Boulevard to Park-Presidio Boulevard to be a part of the District's Marin line over the Golden Gate Bridge, and providing local intra-San Francisco service as well as Marin interurban service.

This basic four-finger concept was unanimously agreed to by T.T.C. members and their consultants, and as a result of their discussions with Rapid Transit District staff and consultants, the latter agreed to:

(1) Shift the Marin Line from a Columbus Avenue subway and Lombard Street elevated location favored in the 1956 plan, to a Post-Geary location.

(2) Study an "S. F. Bayshore express line."

(3) Study a Twin Peaks Rapid Transit Line.

(4) Study a Mission subway-Southern Freeway surface alignment in addition to the Valencia Street elevated and Alemany Boulevard elevated being given detailed study and following recommendations in the 1956 "Regional Rapid Transit Plan."

In engineering studies presented by District consultants in May of 1960 a Post-Geary Subway, an S. P. Bayshore express line and a Twin Peaks rapid transit line were included as part of a preliminary system reflecting local recommendations for "range-of-cost" and initial route evaluation.

3. "Mission Line Versus Twin Peaks Line"

Within the T.T.C. considerable discussion took place in the fall of 1959 as to whether a Mission rapid transit line or a Twin Peaks rapid transit line should get first priority. Some committee members favored a Mission line as providing service to an area now inadequately served, while the Twin Peaks tunnel service area now does have partial rapid transit service through the present tunnel car lines.

The T.T.C.'s consultant favored a Twin Peaks line for first priority on the basis that feeder bus lines could provide somewhat higher passenger volumes to a Twin Peaks line and thus result in greater rapid transit utilization in first stages than would be the case if a Mission line were built first.

The idea of constructing the subway in downtown Market Street so that it could be used by tunnel street cars was advanced by District engineering staff members in the fall of 1959, a concept which appealed to some T.T.C. members, but which was rejected by other committee members and by the committee's consultants as being a "second-class solution."

Thus, when the committee's tentative report appeared in February of 1960, it reflected the thinking of the consultant and a majority of the Committee in recommending a Twin Peaks line for first priority, and a Mission Line for second-stage construction.

4. "Four Track Market Street Subway Versus Leavenworth-Post Loop"

The Rapid Transit District engineers favored a two-level four track subway under Market Street, the lower level accommodating the trans-bay-peninsula trains and the upper level the Mission and Twin Peaks lines (initially to be used by the city's tunnel car lines if the Twin Peaks Line were not built in the first stage). The Marin Line would have a stub-end terminal at Post and Market Streets.

The Committee's consultants, however, proposed that the Peninsula "S. F. Bayshore express" line be routed north under Seventh Street, across Market Street, and under Leavenworth and Post Streets, forming a junction with the Post Street Marin Subway and continuing along Market Street as a two-level four-track facility from Post to Battery Street to land at the Golden Gateway. West of Post Street the Market Street subway would be of single level two-track design.

The District engineers presented considerable evidence backing their assumptions that predicted 1975 peak-hour passenger flows would be so heavy as to preclude combining the Peninsula express line and the Marin line on a single pair of tracks in the Post Street Subway east of Leavenworth Street. The City's consultant countered with data to indicate that current trends do not indicate sensible predicted increases in downtown passenger destinations, so that this two-track stretch would be adequate, an assumption that was challenged by some T.T.C. members and supported by others.

The Department of City Planning in the Fall of 1960 undertook a study of downtown destinations and the expected future expansion of the Central Business District, which indicated that a Market Street line would provide stations more central to most downtown passenger destinations than a Leavenworth-Post loop, and this routing was finally agreed to in October of 1960 by the T.T.C.

(although the February and May 1960 reports of the Committee had shown the Leavenworth Loop on the plans). The Planning Department also predicted significant increases in employment in the central business district as well as increases in daily trips.

5. "Three Tracks Versus Four Tracks on The S. P. Peninsula Line"

An early concept of the committee's consultants was that considerable savings could be effectuated in the peninsula line if, instead of paralleling the S. P. tracks with two new rapid transit tracks on land that the District would buy, that the Southern Pacific Railway be approached with the view of establishing a three-track combined-operation scheme for District rapid transit trains and main line passenger and freight trains. Then, only one new track would be needed, and improvements could be leased from the S.P. on an amortization basis through rental payments, thus saving District bond capital for other improvements, such as the Twin Peaks Line in San Francisco.

S. P. Railway engineering officials reacted favorably to this concept in informal meetings with the city's consultants, because:

(1) An actual engineering plan for such a three-track layout had been drawn up in 1955 to increase track capacity to handle growing commuter peak-hour passenger loads (Use of new double-deck cars increased per-train carrying capacity however, and made the third track unnecessary);

(2) It was assumed that standard rapid transit trains with regular engineers and crews would be utilized by the District;

(3) It was assumed that train frequencies would be such that freight switching operations across rapid transit tracks would be feasible (i.e. trains every 15 minutes to every 30 minutes in off-peak periods).

When Rapid Transit District engineers discussed this possibility with S. P. officials, however, they presented them with these assumptions as to rapid transit utilization:

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(1) Computer-controlled automatic 80-mile-per-hour trains on frequencies varying from 90 seconds to 15 minutes, with each train having a crew consisting of only one operator;

(2) Necessity for complete grade separation of all train operations of the two carriers and separation of track areas by man-proof fences;

The District engineers felt they would have to:

(1) Rebuild one of the tracks to meet requirements for high-speed transit operations;

(2) Build a new track;

(3) Relocate one existing track to get necessary clearances so that a man-proof fence could separate the S. P. and District tracks.

Thus they concluded that such a three track system would be more expensive than laying two new rapid transit tracks alongside the existing railway tracks which could remain undisturbed for much of their length.

No cost difference would be involved in the "three-track versus four track" concepts for construction within San Francisco since four tracks would have been needed for either scheme as far south as the Bayshore yards.

The city's cost estimate for the three-track system was considerably less than the District engineers estimates, but a comparison by item showed that much of this was due to inclusion in District estimates of costs of rights-of-way for District tracks and considerable acreage of land for station parking lots, which the city consultants had assumed could be leased from the S. P. on an annual rental basis, and thus excluded from capital costs which would have to be financed from the rapid transit bond issue.

Thus, the real cost difference was not "three tracks versus four tracks" but "land purchasing versus leasing."

9. Proposals Agreed Upon by the T.T.C. But Not Adopted by B.A.R.T.D.

Both "Majority" and "Minority" reports submitted by members of the Transportation Technical Committee in October 1959 included the following recommendations which were not incorporated by the Bay Area Rapid Transit District in final route plans adopted on February 9, 1961:

(1) Subway under Geary Boulevard from Spruce Street to Park Presidio Boulevard instead of elevated. (Instead, a new tunnel directly into the Presidio from Post Street and Presidio Avenue was adopted, eliminating a station at 11th Avenue and Geary Boulevard);

(2) Extension of the Market Street upper-level subway west from Geary Street to the East Portal of the Twin Peaks Tunnel (to give tunnel cars complete rapid transit travel time potential from West Portal to downtown);

(3) Extension of the Market Street upper-level subway east from First Street to a terminal at Front and Sacramento Streets adjacent to the Golden Gateway.

District officials held conferences with S. P. officials and reported a general receptivity to the leasehold idea, but no willingness to enter into any obligations or commitments until the District had its bond funds in hand and was ready to build. On this basis the District officials felt unwilling to exclude bond funds for the Peninsula line land purchases from their bond issue total unless they had a clear commitment from the S.P. that a leasehold arrangement would be carried out.

Within the T.T.C. the members who signed the "Minority Report" in October of 1960 tended to favor the three-track leasehold concept and to believe it represented actual savings that could be applied to other lines in San Francisco while those signing the "Majority Report" tended to believe that no actual saving would be involved that would be of such significance that additional San Francisco route mileage could be financed from such savings.

6. "150 h.p. motors vs. 100 h.p. motors and 10'6" cars vs 9'6" cars"

Considerable discussion within the T.T.C. centered around whether or not the District's standards for rolling stock were too high. The Committee's consultant many times raised the point that provisions for extra high speed and extra width of cars were loading the District system with expenses that made it economically infeasible. Studies were made of simulated runs from Peninsula points by trains having 100 horsepower motors instead of 150 horsepower motors and it was claimed that only a few minutes longer running time would result, but that considerable savings in cost of motors, cost of wiring, substations and transformers and electrical switch-gear would result from lower power requirements. District engineers countered that the time saved was worth the extra money, particularly since the system was to be competitive with private autos on freeways, and a specific objective of the system is to divert auto travel in peak hours from freeways to rapid transit, thus reducing freeway congestion.

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"Minority" Committee members supported the consultant's point of view, but "Majority" members felt that this was a policy matter for the District Board of Directors and not of direct concern to the City insofar as they related to District-Wide service standards.

"Wide" (10 foot 6 inches) cars were of importance because of the necessity of widening the Twin Peaks Tunnel if 10 foot 6 inches wide District cars were to be routed through it. District tunnel specialists recommended strongly against widening the tunnel, for safety reasons, and thus their concept of a possible Twin Peaks rapid transit line involved boring a new tunnel for one track and using the existing tunnel for only one single track (instead of the two tracks now carrying street-cars).

Thus, the District's estimated cost of a Twin Peaks line was considerably higher than that of the committee's consultants, which involved no new tunnel.

"Minority" members felt (with the City's Consultant) that a 9' or 9'6" car that could go through the existing Twin Peaks Tunnel was sufficiently wide for the entire Bay Area system. "Majority" members felt that the 9'6" cars could be used on a Twin Peaks line with 10' 6" cars on all other lines. District staff members wanted a 10'6" car on all lines, even if it involved a new tunnel on the Twin Peaks Line.

7. Other System Cost Differentials

The city's consultant's estimates for three routes in San Francisco (Bayshore, Twin Peaks and Post Street-Geary Boulevard) were considerably lower than cost estimates made by the District for substantially the same routes. These were explained by District engineers on the following bases:

(1) District estimates represented those based on more detailed planning and estimating, while the City's estimates were of a preliminary nature;

(2) District estimates included a contingency for inflationary rises in prices to 1970 levels;

(3) Some design standard differences were reflected: For instance, some stations were designed by the District for 700-foot lengths while the City's consultants allowed for 500-foot lengths. Also the "automatic train" concept of the District involved higher costs for train control systems. The Twin Peaks Tunnel problem has already been described.

In the end it was decided that District cost estimates would be used by the T.T.C. members in comparing cost of routes desired to be built in first-phase and second-phase construction periods.

8. "Mission Line Versus Bayshore Line"

In final deliberations of the Transportation Technical Committee, lack of agreement between "Majority" and "Minority" members centered on whether to recommend a Bayshore-S. P. line or a Mission-Southern Freeway line for first-phase construction. It had become evident that the District Board of Directors would not approve two Peninsula lines for first phase construction.

Arguments in favor of a Bayshore Line were:

(1) It would be cheaper by many millions of dollars on the basis of District estimates. Thus there would be a greater chance of inclusion in a first-phase or second-phase construction program of a Twin Peaks line as recommended in the Committee's February 1960 and May 1960 reports, if the Bayshore line were built rather than the more expensive Mission Line.

(2) It would provide faster service to Peninsula points, primary objective of the District system;

Arguments in favor of a Mission Line were:

- (1) It would immediately serve (even with planned infrequent "express stations") more San Franciscans than a Bayshore line;
- (2) It would serve Daly City, and (indirectly) South San Francisco's "Skyline Drive" subdivisions, and Pacifica, thus reducing auto traffic which now congests streets in Southwestern San Francisco;

(3) If the Bayshore Line were built in a later construction phase, the Mission line could be converted into a local service line by the addition of more stations which could be provided for in initial plans.

In either event it was assumed that use of the Market Street subway by tunnel car lines (as outlined in the District's proposed plan made public on August 11, 1960) would provide immediate travel-time saving to the users of the Twin Peaks and Sunset tunnels. ("Minority" members strongly favor full-scale Twin Peaks rapid transit over the use of street cars in subways and tunnels).

The "Majority" favored a first-phase Mission Line, while the "Minority" favored a first-phase Bayshore - S. F. alignment (and if at all possible some steps towards a first-phase Twin Peaks Line).

(It should be noted at this point that the District had recommended a plan including a long tunnel under the San Miguel hills which by-passed Mission District stations, and which could not have later been converted into a local line. This was objected to in both majority and minority reports, and in the District's final plan of February 9, 1961, a Mission-Southern Freeway, line was recommended, following the "Majority" report of the T.T.C.)

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